# Section A
# Nuclear Materials Stabilization and Disposition of PFP (RL-0011)

CH2MHILL
Plateau Remediation Company

J.W. Long
Vice President and
Project Manager for
PFP Closure Project

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# PROJECT SUMMARY

The Plutonium Finishing Plant (PFP) Project continues to maintain PFP facilities compliant with authorization agreement requirements.

**American Recovery and Reinvestment Act (ARRA)**

Removal of plutonium-contaminated process equipment continued as a top priority in readying the PFP Complex for demolition, with a particular focus on removal of gloveboxes and associated piping and ductwork from the process and lab areas. Glovebox Deactivation, Decommission, Decontamination, and Demolition (D&D) is complete in the backside vault rooms, Standards Laboratory, Analytical Laboratory, and the Radioactive Acid Digestion Test Unit (RADTU). A total of 134 gloveboxes have been removed to date with Recovery Act Funds. Of these, 127 have been shipped out of PFP for treatment or disposal and one has been set aside and staged for size reduction and disposal as transuranic (TRU) waste.

All six buildings in and around the 2736-ZB Vault Support Facility have now been readied for demolition, bringing the total number of PFP structures readied for demolition with Recovery Act funds to 31. Two Structures were demolished in December 2011 with 2736-ZC being completed and 2731-ZA awaiting final load out.

Work to clean out PFP's three laboratories and the "backside" vaults in the 234-5Z building to prepare them for demolition was completed, and the Key Performance Parameter closure documentation is being finalized for the 47 rooms in these four areas.

External isolations, process equipment removal, and decontamination continued on the Remote Mechanical A (RMA) and Remote Mechanical C (RMC) Line gloveboxes, where work has been constrained by the significant turnover in NCOs and RCTs. Glovebox HA-14DC was removed from Room 235A-1, completing removal of all gloveboxes in this room. Glovebox HC-11 was removed from Room 228A. In Room 235-B, with equipment removal and decontamination being complete on large glovebox HA-23S, the stage is set for future separation of this 4-tier, 10-ton glovebox into two horizontal sections that can be physically relocated within the building pending further size reduction in the centralized size reduction facility to be installed in Room 236.

Work on removing transfer lines, process vacuum system piping, and asbestos insulation removal is constrained by lack of adequate resources as a result of workforce restructuring and diversion of resources to support demolition of the 2736-ZB Vault Facility. The total number of highly contaminated process solution transfer lines in the 234-5Z building removed remains at 594 feet. Total process vacuum system piping removed remains at 1,210 feet. Asbestos removed from piping and ductwork remains at 15,228 feet.

As the pace of D&D work has accelerated at PFP, so have waste generation rates. CHPRC has now shipped approximately 3,888 cubic meters of waste from PFP with support from Recovery Act funds, including 3,066 cubic meters of low level and mixed low level waste, 788 cubic meters of TRU waste, and 34 cubic meters of nonradioactive waste.

**Base**

236Z Plutonium Reclamation Facility – Late November, during the relocation of Pencil Tank Assembly 23 (Tank 23) strong-back, the crane operator noticed that a tool that was hung in the maintenance cell was moving as the crane moved. Prior to relocation of Pencil Tank Assembly 25 (Tank 25) to the maintenance cell, an inspection of the crane was performed. A visual inspection found that the flex conduit from the trolley junction box to the trolley clutch had a separation of approximately two inches exposing the electrical cables which do not appear to be damaged. A canyon entry was made to replace the flex conduit from the trolley junction box to the trolley clutch; an operation test of the canyon crane was conducted and the crane was returned to service.

# EMS Objectives and Target Status

| Objective # | Objective | Target | Actions to Achieve Target | Due Date | Status |
|---|---|---|---|---|---|
| 12-EMS-PFP-OB1-T1 | Reduce generation/ toxicity of waste through spill reduction | Reduce likelihood of hydraulic spills from D&D work at PFP | Review history of D&D hydraulic failures | 12/30/2011 | 100% |
| | | | Identify types of failure and impact | 03/29/2012 | |
| | | | Research improved hydraulic line technology | 06/29/2012 | |
| | | | Report recommendations to management | 07/30/2012 | |
| 12-EMS-PFP-OB2-T1 | Reduce vehicle miles/ green house gas emissions by use of mass transit | Formally request Ben Franklin Transit (BFT) bus service to 200W/PFP | Formally request BFT/CHPRC to implement | 10/31/2011 | 100% |
| | | | Conduct tour/employee meetings with BFT | 11/01/2011 | 100% |
| | | | Formally request proposal from BFT | 11/24/2011 | 100% |
| 12-EMS-PFP-OB3-T1 | Reduce radioactive air emissions from open air demolition of 236-Z | Decontamination of 236-Z Building canyon | Review decontamination methods | 12/30/2011 | 100% |
| | | | Evaluate selected method for air emissions | 06/31/2012 | |
| | | | Evaluate method's ability for source reduction | 08/31/2012 | |

# TARGET ZERO PERFORMANCE

| | Current Month | Rolling 12 Month | Comment |
|---|---|---|---|
| **Days Away, Restricted or Transferred** | 0 | 2 | N/A |
| **Total Recordable Injuries** | 0 | 2 | N/A |
| **First Aid Cases** | 3 | 74 | **Base** - 12/15/2011 - Employee experienced knee strain. (22543)<br>**Base** - 12/15/2011 - Employee experienced abdomen strain. (22547)<br>**Base** - 12/19/2011 - Employee experienced loss of consciousness. (22547) |
| **Near-Misses** | 0 | 0 | N/A |

# KEY ACCOMPLISHMENTS

**ARRA**

**11.05 Disposition PFP Facility – ARRA**

- In Remote Mechanical "A" Line Room 235B, the application of fixative to the interior of glovebox HA-23S was completed. Pre-assembly and equipment testing continued in the 212-Z lay down yard for the large lift table and the two five ton gantry cranes that will be used in the special lift plan to separate glovebox HA-23S.
- In RMA Line Room 235A-1, glovebox HA-14DC was removed from Room 235A-1 and transferred to the PFP Solid Waste Organization.
- In RMA Line Room 235A-3, the mechanical isolation of glovebox HA-7A was completed. The removal of the internal process equipment in HA-8A, HA-8B, and HA-9C was completed with the exception of the final sweeps and wet wipe downs. Work was started on removing two vacuum lines connected to HA-9C.
- In RMC Line Room 230A, equipment was staged to prepare for Aspigel chemical decontamination of glovebox HC-21C and conveyor sections HC-2A and HC-2B.
- In RMC Line Room 230B, the team completed sweeps and wet wipe downs of gloveboxes HC-2 and HC-21A in preparation for chemical decontamination.
- In RMC Line Room 228A, the team completed the wipe downs, fixative application, and the separation and removal of glovebox HC-11.
- Due to work force restructuring, all RMA/RMC teams continued to train new team members during the month of December.

**Laboratory Areas**

- Bulk Area Cleanup activities for the laboratory areas (A-Lab, PPSL, Standards Lab) are now complete.

**Backside Rooms (Rooms 158-172) D&D**

- Planning for the initial work package for D&D of Room 166, *Mechanical Isolation of Room 166,* is complete and D&D work in that room is projected to begin the week of January 16.

**PPSL**

- Bulk Area Cleanup activities for the lab are now complete

**Standards Lab**

- Bulk Area Cleanup activities for the Standards Lab are complete

**Disposition PFP (234-5Z) Facility**

- Process vacuum piping removal is 30 percent complete with 1,210 total feet removed.
- A total of 594 feet of chemical piping transfer line has been removed.
- No asbestos-containing material was removed during the month of December. The total remains at 15,228 feet of asbestos removed.

**2736Z/ZB Vault Complex**

- Demolition commenced on two 2736-ZB complex buildings, 2721-Z and 2736-ZB.

**Base**

**11.02 Maintain Safe & Compliant PFP - Base**

- RL approval of the 2011 D&D Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR) annual updates was received on December 21. The approved version of specific administrative control (SAC) 5.17 governing use of facility confinement barrier doors changed significantly from what was originally submitted by CHPRC, establishing many more requirements for opening confinement area doors leading directly outside than previously required by the Condition of Approval (COA). Implementation is due by March 19, 2012.
- PFP Maintenance and Operations continues to perform work activities designed to enhance the condition of the exhaust ventilation system for the facility.

**11.05 Disposition PFP Facility – Base**

**Plutonium Reclamation Facility (PRF)**

- Late November, during the relocation of Pencil Tank Assembly 23 (Tank 23) strong-back, the crane was damaged. A canyon entry was made to replace the flex conduit from the trolley junction box to the trolley clutch; an operation test of the canyon crane was conducted and the crane was returned to service.
- Pencil Tank 23 segments were loaded into three SWBs and shipped to the Central Waste Complex (CWC) on December 15.
- Size reduction of Tank 25 was completed on December 16 and segments were sealed out and loaded into two SWBs.
- A demonstration of the BROKK (Remote Handling Device) with a saw blade was held on Wednesday, December 14. The saw successfully cut up the mockup pencil tank assemblies and strong-back. Engineering will continue to evaluate the use of the BROKK for pencil tank size reduction and canyon cleanup.

# MAJOR ISSUES

**Issue -** On August 29, Exhaust Fan #1 in the 291-Z facility catastrophically failed and caused a small fire when a hot bearing made contact with the drive belt. The facility implemented required casualty response actions and the fire was extinguished. Normal ventilation for the facility was shutdown and backup steam turbine driven exhaust fans were placed in service. Per Technical Safety Requirement (TSR), the facility was placed in a "Terminate Activities" mode which halted all D&D activities.

**Corrective Actions -** A thorough evaluation of the 291-Z exhaust fans was performed. The evaluation identified additional mechanical issues with most of the remaining exhaust fans. A positive Unreviewed Safety Question (USQ) determination was declared and Evaluation of Safety of the Situation (ESS) was prepared and submitted to RL for approval. The ESS was approved by RL on September 15, 2011 (Letter #11-SED-0165). Normal ventilation fans were restarted and the Terminate Activities condition was exited. Normal D&D activities were authorized to commence. A JCO was submitted to RL via letter CHPRC-1104667 R1 on November 28 as directed by the ESS.

**Status -** Exhaust Fan 3 and 5 weld repairs will be completed in early February, 2012. The Enhanced Maintenance Program will be implemented by the end of February, 2012.

# RISK MANAGEMENT STATUS

**Unassigned Risk**
**Risk Passed**
**New Risk**

Working - No Concerns
Working - Concern
Working - Critical

Increased Confidence
No Change
Decreased Confidence

| Risk Title | Risk Strategy/Handling | Assessment | | Comments |
|---|---|---|---|---|
| | | Month | Trend | |
| **RL-0011/WBS 011** | | | | |
| PFP-003: More Extensive Cleanout/Decon Required | Develop and implement a detailed process facility characterization plan. Determine and obtain approval for ready-for-demolition criteria (contamination removal/cleanup endpoints prior to building demolition). Early characterization provides an opportunity to avoid project schedule impact; however, cost impacts remain. | Working - No Concerns | No Change | No new discoveries occurred in November or December. Significantly higher than expected levels of contamination were previously discovered in deactivated process vacuum piping in 291-Z, a transfer line from 242Z to 234-5Z, and the ductwork downstream of HEPA filters in 2736-ZB. The discoveries have resulted in the need to remove much of these systems/components rather than leave them in place for demolition. The impact of these discoveries has been factored into PMB-3, as has the development and implementation of a detailed facility characterization plan to proactively investigate other areas where facility contamination levels are not well understood. |
| PFP-004, Risk of PRF Canyon D&D cost/schedule growth<br><br>PFP-009: Problems with Aging Building Systems/Components Impacts D&D | Complete detailed planning/engineering for D&D of PRF canyon, particularly pencil tank removal and canyon decontamination. Perform critical system reliability assessments for all of the PFP safety and essential systems; procure critical spares; maintain existing redundancies; repair or replace equipment as failures occur and complete planned facility modifications. | Working - Concern | Increased Confidence | Following repairs, the PRF canyon crane continued to operate satisfactorily during December and Pencil Tank disposition is continuing.<br><br>Following the failure of one exhaust fan in 291-Z and inspection/repair of others, implementation of the enhanced preventative maintenance program for Vital Safety Systems and VSS support systems is continuing. The final repairs, which involve welding to repair minor cracks observed on the blades of two of the fans, were delayed into January as qualified materials were not on hand to complete the weld qualification and repairs. |
| PFP-008: Unexpected High Concentration TRU Material Holdup Discovered | Utilize supplemental NDA and other characterization techniques to identify areas of concern early in the project. Discuss potential response actions and administrative controls with Safeguards and Security, and proceduralize them as needed to guide the project in responding in the event unexpected material is identified. | Working - Concern | No Change | Collection and disposition of the higher holdup material previously discovered in one of the former process glovebox lines is underway and being managed in accordance with pre-approved procedures developed in anticipation of such a discovery. Impacts are now estimated at 3-4 weeks for one of the D&D teams. |
| PFP-042, Increased Attrition Impacts Availability of Qualified Resources<br><br>PRC-021A, Workforce restructuring caused by funding changes | Risks have historically been accepted without mitigation. | Working - Concern | Increased Confidence | Training and qualification is continuing for the personnel transferred to PFP in early October to backfill for lower seniority personnel released during workforce restructuring. Most of the impacted teams have restarted their planned work, with the exception of the two process vacuum system removal teams, one of which is scheduled to restart work in January and the second, staffed through transfers from WRAP, in April. The anticipated impacts associated with workforce restructuring were incorporated in PMB-3, although the bump and roll impacts on RCT availability were higher than expected, affecting nearly 50% of the workforce. |
| PFP-006: Overall D4 Schedule Impacts from Interferences Between Subprojects<br><br>PFP-061, Experienced Demolition Crews/Equipment Not Available | Ensure that activity schedules for all subprojects are integrated and are detailed enough to identify and avoid possible conflicts, and maintain coordination between closely related efforts that could overlap or that use the same resources. | Working - Concern | Increased Confidence | Bulk area cleanout in the Analytical Laboratory and readying 2736-ZB for demolition (refer to PFP-003 above) both progressed in December to the point where the RCT support for these tasks could be redeployed back to activities they were originally plannned to support. Impacts on other D&D activities have been significantly reduced, although some additional impacts were experienced in December due to unanticipated ventilation system outages and repairs as reported above. |
| PFP-064 OPP: Reduced Size Reduction Required Consistent With SLB2 Packaging | Implementation of the use of SLB-2s has been identified as a sitewide initiative by CHPRC and RL. A specific plan of action was developed and is being executed to support this opportunity. | Working - No Concerns | Increased Confidence | All needed prerequisite actions for loading of SLB -2 containers outside 234-5Z were completed during December, however loading of the first container was deferred into January due to inclement weather. Actions are continuing to prepare for an authorize loading of containers within the building, expected to be completed in late January or early February. The scope, schedule and cost reductions that will result from the use of SLB-2 packages at PFP have been assessed and incorporated in the updated PMB-3 delivered to RL in late November. |

# PROJECT BASELINE PERFORMANCE
## Current Month
## ($M)

| WBS 011/RL-0011 Nuclear Matl Stab & Disp PFP | Budgeted Cost of Work Scheduled (BCWS) | Budgeted Cost of Work Performed (BCWP) | Actual Cost of Work Performed (ACWP) | Schedule Variance ($) | Schedule Variance (%) | Cost Variance ($) | Cost Variance (%) |
|---|---|---|---|---|---|---|---|
| **ARRA** | 7.6 | 6.1 | 7.3 | (1.5) | -20.0 | (1.2) | -20.3 |
| **Base** | 3.8 | 3.8 | 3.2 | 0.1 | 1.4 | 0.6 | 16.5 |
| **Total** | **11.4** | **9.9** | **10.5** | **(1.5)** | **-12.9** | **(0.6)** | **-6.1** |
| Numbers are rounded to the nearest $0.1M | | | | | | | |

**ARRA**

**CM Schedule Variance: (-$1.5M/-20.0%)**

Current month schedule variance is a result of inability to work planned shifts in RMA/RMC process lines due to resource constraints, stop works and recovery actions, posting issue during equipment movement, and recovery actions from a contamination event. Delays associated with demolition of the ZB Complex also contribute to the variance, resulting from change in execution strategy.

**CM Cost Variance: (-$1.2M/-20.3%)**

Current month cost variance results from inefficiencies associated with issues discussed above and the Diversion or RCT resources and two D&D teams from their originally planned work in order to complete unplanned, carryover scope for KPP closure of the Analytical Laboratories and to ready the 2736-ZB Vault Support Facility for demolition Training and PFP-specific qualification of a significantly greater number of RCTs than expected (nearly 50% of the workforce) as a result of the “bump and roll” impacts of workforce restructuring.

**Base**

**CM Schedule Variance: (+$0.1M/+1.4%)**

The schedule variance is within reporting thresholds.

**CM Cost Variance: (+$0.6M/+16.5%)**

Current month cost variance results from ARRA-funded resources available to work based-funded RMA/RMC process line work earlier than planned (progress earned on outsourced size reduction of gloveboxes with costs coded to ARRA), and lower labor use/cost to complete facility surveillances.

## Contract-to-Date
### ($M)

| WBS 011/ RL-0011 Nuclear Matl Stab & Disp PFP | Budgeted Cost of Work Scheduled | Budgeted Cost of Work Performed | Actual Cost of Work Performed | Schedule Variance ($) | Schedule Variance (%) | Cost Variance ($) | Cost Variance (%) | Budget at Completion (BAC) | Estimate at Completion (EAC) | Variance at Completion (VAC) |
|---|---|---|---|---|---|---|---|---|---|---|
| **ARRA** | 279.1 | 276.3 | 284.5 | (2.7) | -1.0 | (8.2) | -3.0 | 293.7 | 298.9 | (5.2) |
| **Base** | 166.3 | 165.7 | 167.8 | (0.5) | -0.3 | (2.0) | -1.2 | 595.5 | 595.5 | (0.0) |
| **Total** | **445.3** | **442.1** | **452.3** | **(3.3)** | **-0.7** | **(10.2)** | **-2.3** | **889.2** | **894.4** | **(5.2)** |

Numbers are rounded to the nearest $0.1M

**ARRA**

**CTD Schedule Performance: (-$2.7M/-1.0%)**

The schedule variance is within reporting thresholds.

**CTD Cost Performance: (-$8.2M/-3.0%)**

The cost variance is within reporting thresholds.

**Base**

**CTD Schedule Variance (-$0.5M/-0.3%)**

The schedule variance is within reporting thresholds.

**CTD Cost Variance (-$2.0M/-1.2%)**

The cost variance is within reporting thresholds.

**Variance at Completion (-$5.2M/-1.8%)**

The variance at completion is within reporting threshold.

**Contract Performance Report Formats are provided in Appendix A and Appendix A-1.**

**Estimate at Completion (EAC)**

The BAC and EAC include FY2009 through FY2018, the PRC contract period.

The EAC changes from November to December, for both ARRA and Base, are within reporting thresholds.

# FUNDS vs. SPEND FORECAST

## ($M)

| | FY2012 | | |
|---|---|---|---|
| **WBS 011/RL-0011 Nuclear Matl Stab & Disp PFP** | **Projected Funding** | **Spending Forecast** | **Spend Variance** |
| **ARRA** | 33.4 | 33.4 | 0.0 |
| **Base** | 99.4 | 94.9 | 4.5 |

Numbers are rounded to the nearest $0.1M

**Funds/Variance Analysis**

Funding includes FY2011 carryover and FY2012 new Budget Authority.

**Critical Path Schedule**

Critical Path analysis can be provided upon request.

**Baseline Change Requests**

BCRA-011-12-001R0, PFP Base to ARRA P6 Coding Correction.

# MILESTONE STATUS

None at this time.

# SELF-PERFORMED WORK

The Section H. clause entitled, “Self-Performed Work,” is addressed in the Monthly Report Overview.

# GOVERNMENT FURNISHED SERVICES AND INFORMATION (GFS/I)

None identified at this time.